Obesity and Metabolic Syndrome among Egyptian Adolescents

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ABBREVIATIONS

ACEIS	:	Angiotensin converting enzyme inhibitors.
ADA	:	American diabetes association.
ANOVA	:	Analysis of variance.
ASCVD	:	Atherosclerotic cardiovascular diseases.
BMI	:	Body mass index.
ATP	:	Adenosine triphosphate.
BUN	:	Blood urea nitrogen.
BP	:	Blood pressure.
BCR	:	B-cell receptor
CAD	:	Coronary Artery Disease.
CD	:	Cluster of differentiation.
CE	:	Cholesterol ester.
CETP	:	Cholesterol ester transfer protein.
CHD	:	Coronary heart disease.
CML	:	Carboxy-Methyl Lysin
CR	:	Consensus Repeats
CRF	:	Chronic Renal Failure
CRP	:	C- reactive protein.
CVD	:	Cardiovascular diseases.
DBP	:	Diastolic blood pressure.
DCCT	:	Diabetes control and complication trial.
DKA	:	Diabetic ketoacidosis.
DM	:	Diabetes mellitus.
EC	:	Endothelial cell.
ESR	:	Erythrocytic sedimentation rate
ESRD	:	End stage renal disease.
FBS	:	Fasting blood sugar.
FFAs	:	Free fatty acids.
GDM	:	Gestational diabetes mellitus.
GFR	:	Glomerular filtration rate.

GH	:	Growth hormone
GN	:	Glomerlornephritis.
HbA1 ₀	:	Non glycated hemoglobin
HbA1c	:	Glycated hemoglobin.
HbF	:	Fetal hemoglobin.
Нсу	:	Homocysteine.
HDL-C	:	High denesity lipoprotein cholesterol.
HGP	:	Hepatic glucose production.
HOMA-IR	:	Homeostasis model assessment.
IDDM	:	Insulin dependent diabetes mellitus.
IFG	:	Impaired fasting glucose.
IGT	:	Impaired glucose tolerance.
IL-1	:	Interlukein-1.
IL-6	:	Interlukein-6.
IR	:	Insulin resistance.
IRAP	:	Interleukin-1 receptor antagonist protein.
IS	:	Immunological Synapse
K^+	:	Potassium Ion.
LDL-C	:	Low density lipoprotein cholesterol.
LPL	:	Lipoprotein Lipase
LPS	:	Lipopolysaccharide.
MBG	:	Mean blood glucose.
MDA	:	Malondialdhyde.
MODY	:	Maturity Onset Diabetes Of Young.
MI	:	Myocardial infarction.
MS	:	Metabolic syndrome.
NAFLD	:	Non alcoholic fatty liver disease
NDDG	:	National Diabetes Data Group.
NIDDM	:	Non insulin dependent diabetes mellitus.
Р	:	Probability.
РСК	:	Protein Kinase C.
PCP	:	Primary care physicians.
PCOS	:	Polycystic ovary syndrome.

r	:	Pearson correlation co-efficient.
RR	:	Risk Ratio
RBCs	:	Red blood cells
RBP-4	:	Retinol binding protein- 4
RNA	:	Ribonucleic acid.
ROS	:	Reactive Oxygen species.
SBP	:	Systolic blood pressure.
STNF.R	:	Soluble tumor necrosis receptor.
T1D	:	Type 1 Diabetes.
TAG	:	Triacylglycerols.
TGF-β	:	Transforming growth factor-beta.
TNF	:	Tumor necrosis factor.
Vit.A	:	Vitamin A.
Vit.E	:	Vitamin E.
VL DL- C	:	Very low denesity lipoprotein cholesterol.
WHO	:	World Health Organization

ABSTRACT

A considerable increase in the prevalence of metabolic syndrome (MS) has been reported in parallel to the increasing frequency of childhood obesity and type 2 diabetes mellitus. This study provides current estimates of the metabolic syndrome and some of its individual components in obese Egyptian adolescents.

A total of 93 persons were submitted to this study and were classified into two groups. The first one included 53 obese patients without MS. Second group included 40 obese patients with MS. Both were compared with control group (40 healthy persons). All were cross matched regarding age, sex and race.

The studied subjects were investigated for serum Creactive protein, adiponectin and homocysteine. In addition, some lipid parameters via total cholesterol, HDl-c, LDL-c and triacylglycerol were also determined to reflect the presence of dyslipidemia and CVD. Moreover, MDA, total antioxidant and some vitamins were also measured to reflect the presence of oxidative stress.

Results showed that there was a highly significant elevation of HOMA-IR, CRP, homocysteine and lipid profile in patients without MS and with MS, while there was a highly significant decrease in adiponectin in the same patients.

Key words: Obesity, insulin resistance, HOMA-IR, adolescent.